

Lecture program

Sept. 4

		Chair: S. Mukai (Hokkaido University)	Lecture Hall
9:00	PL1	New Challenges in Fundamental Adsorption-based Science <u>K. Kaneko</u> (Shinshu University, Japan)	
9:40		Coffee Break	
			A. Fundamentals of Adsorption
		Chair: A. Matsumoto (Toyohashi University of Technology)	Lecture Hall
10:00	LA-1	Selective O ₂ Sorption of Elastic Layer-structured MOFs R. Koyama, M. Togo, H. Kajiro, and <u>H. Kanoh</u> (Chiba University, Japan)	
10:20	LA-2	High-silica Potassium-exchanged LTA Zeolite as a Highly Selective CO ₂ Adsorbent for Post-combustion CO ₂ Capture A. Hanif, <u>J. Shang</u> (City University of Hong Kong, Hong Kong)	
10:40	LA-3	Measuring Adsorption Properties of Fragrance Molecules on Fibres: Importance of Substrate Amorphicity on the Adsorption and Retention Behaviour of Small Molecules by Solid State Materials <u>N. Ali</u> , J. Marsh, G. Rondepierre and D. R. Williams (Imperial College London, United Kingdom)	
11:00	LA-4	Selective Adsorption and Permeation using Graphene Sheet K. Shimizu, Y. Oya, H. Kitayama, M. Ishida, D. Hoshi, and <u>T. Ohba</u> (Chiba University, Japan)	
11:20		Break	
		Chair: I. Moriguchi (Nagasaki University)	Lecture Hall
11:30	KL1	Preparation of Hierarchically Nanoporous Carbon-Based Nanocomposites for the Applications in Electro-Chemical Energy Storage <u>Y. Tao</u> , K. P. Annamalai, L. Liu, M. Zhang, N. A. Fathy, J. Gao, X. Zheng and T. Chen (Chinese Academy of Sciences, China)	
12:00		Lunch	
		Chair: H. Kanoh (Chiba University)	Lecture Hall
13:20	KL2	Compression and High Pressure Effects in Adsorbed Films K. Shi, Y. Long, D. Srivastava, M. Śliwiska-Bartkowiak, E. E. Santiso and <u>K. E. Gubbins</u> (North Carolina State University, U.S.A.)	
13:50		Break	
			A. Fundamentals of Adsorption
		Chair: B. Han (Yonsei University)	Lecture Hall
14:00	LA-5	Characterization of Electrostatic Field Strength in Zeolite Cavities by Adsorption Microcalorimetry of Methane as Probe Molecule <u>A. Matsumoto</u> , S. Mizuno and H. Ito (Toyohashi University of Technology, Japan)	
14:20	LA-6	Adsorption of Carbon Dioxide on Perfect and Defective Surfaces of Porous Silica Glass: Computer Simulation and Experimental Studies C. Boonfung, N. Ketprasoet, C. Tangsathitkulchai and <u>A. Wongkoblap</u> (Suranaree University of Technology, Thailand)	
14:40	LA-7	Thermodynamic and Kinetic Modeling of Capillary Condensation and Evaporation in Open-Ended Nanopores <u>T. Hiratsuka</u> , H. Tanaka, and M. T. Miyahara (Kyoto University, Japan)	
		Chair: T. Horikawa (Tokushima University)	Lecture Hall
15:00	LA-8	On the Microscopic Mechanism of Thin-to-Thick Film Transition for Argon Adsorption on Weak Surfaces – Cluster Growth and Coalescence of Clusters <u>L. Prasetyo</u> , S. (Johnathan) Tan, K. Q. Loi, D. D. Do and D. Nicholson (University of Queensland, Australia)	
15:20	LA-9	Low Temperature Adsorption of CO ₂ in Graphitic Wedge Shaped Pores with GCMC Simulation <u>X. Liu</u> , C. Fan and D. D. Do (Curtin University, Australia)	
15:40	LA-10	Multiscale Nature of Adsorption Deformation of Hierarchical Micro-Mesoporous Materials <u>A. V. Neimark</u> (Rutgers University, USA)	
16:00		Group Photo	
16:20		Poster (16:20–18:00) Entrance Hall& Seminar room 1	

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9:00	PL1	New Challenges in Fundamental Adsorption-based Science <u>K. Kaneko</u> (Shinshu University, Japan)	
9:40		Coffee Break	
		E1. Adsorption for Energy Related Applications	
		Chair: T. Yamamoto (University of Hyogo)	Seminar room 2
10:00	LE1-1	Ethane-selective Carbon Composites CPDA@A-ACs with High Uptake and Its Enhanced Ethane/Ethylene Adsorption Selectivity J. Xiao, W. Liang, Y. Wu, and <u>Z. Li</u> (South China University of Technology, China)	
10:20	LE1-2	Carbon Dioxide Breakthrough Separation using Elastic-Layer Structured MOF pellet <u>H. Kajiro</u> , T. Nagai, and H. Dohnomae (Nippon Steel & Sumitomo Metal Co., Japan)	
10:40	LE1-3	Performance of Novel Desorbent Swing Adsorption (DSA) Process Using Zeolite for Propane and Propylene Separation <u>J.-J. Kim</u> , S.-H. Hong and C.-H. Lee (Yonsei University, Korea, Republic of)	
11:00	LE1-4	Long-Term Effect of Large Alkanes on Adsorbed Natural Gas Systems <u>J. Romanos</u> , S. Abou Dargham, F. Barakat (Lebanese American University, Lebanon)	
11:20		Break	
		Chair: I. Moriguchi (Nagasaki University)	Lecture Hall
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13:50		Break	
		E1. Adsorption for Energy Related Applications	
		Chair: M. Miyamoto (Gifu University)	Seminar room 2
14:00	LE1-5	Separation of Ternary Gas Mixtures Using Triple Reflux Pressure Swing Adsorption (TR-PSA) <u>G. (Kevin) Li</u> , V. Jusko, G. Xiao, P. A. Webley and E. F. May (The University of Melbourne, Australia)	
14:20	LE1-6	Biogas Upgrading by Vacuum Pressure Swing Adsorption Process Using Commercial Adsorbents <u>Y. Shen</u> , W. Shi and D. Zhang (Tianjin university, China)	
14:40	LE1-7	Determination of Kinetic Parameters of Porous Adsorbents Using a Pressure Jump/Pressure Drop Technique and a Transient Hot Bridge Method <u>O. Kraft</u> , M. Stripf and U. Hesse (University of Applied Sciences Karlsruhe, Germany)	
		Chair: D. Zhang (Tianjin University)	Seminar room 2
15:00	LE1-8	Methane Adsorption on Pitch Derived Activated Carbon Monoliths T. E. Rufford, S. Gao, <u>A. Arami-Niya</u> , B. S. Villacorta, L. Ge, and Z. Zhu (The University of Queensland, Australia)	
15:20	LE1-9	On-site Pilot Demonstration of a Two-stage Deep Desulfation and Decarbonization Pressure and Temperature Swing Adsorption Unit at Elevated Temperature for 3 Nm ³ /h Hydrogen Production at an Ammonia Plant <u>S. Li</u> , P. Hao, X. Zhu, Y. Shi, N. Cai, S. Li, H. Jiang (Tsinghua University, China)	
15:40	LE1-10	Material Selection and Properties for Adsorption Heat Storage <u>F. Mikšík</u> , T. Miyazaki (Kyushu University, Japan)	
16:00		Group Photo	
16:20		Poster (16:20-18:00)	Entrance Hall& Seminar room 1

Sept. 5

		Chair: T. Ueda (Osaka University)	Lecture Hall
9:00	PL2	Fundamental Mechanism of Transition from Clustering to Molecular Layering in Adsorption of Gases on Carbon Materials <u>D. D. Do</u> (The University of Queensland, Australia)	
9:40		Coffee Break	
		A. Fundamentals of Adsorption	
		Chair: K. Urita (Nagasaki University)	Lecture Hall
10:00	LA-11	Machine Learning Driven Computational Design of High Functional Adsorbents for Hazardous Chemicals H. Jung, <u>B. Han</u> (Yonsei University, Korea, Republic of)	
10:20	LA-12	First-Principles Computational Study of the Adsorption Mechanism of CH ₃ I(g) on Activated Carbon and Transition Metal Surfaces <u>H. Chun</u> , B. Han (Yonsei University, Korea, Republic of)	
10:40	LA-13	Consequences of Heterogeneities for Adsorption on Graphene <u>F. Vallejos-Burgos</u> and K. Kaneko (Shinshu University, Japan)	
11:00	LA-14	Structures of Ice Confined in Nanocarbons; X-ray (WAXS) and Neutrons Diffraction (ND) Studies <u>M. Śliwiska-Bartkowiak</u> , K. Domin, M. Jazdzewska, A. Beskrowny, K. E. Gubbins (A. Mickiewicz University, Poznan, Poland)	
11:20		Break	
		Chair: S. Tanaka (Kansai University)	Lecture Hall
11:30	KL3	Defect Engineering for Manipulating Porosity and Adsorption Behavior of Metal-organic Frameworks Y. Jiao, Y. Liu, G. Zhu, J. T. Hungerford, S. Bhattacharyya, R. P. Lively, D. S. Sholl, and <u>K. S. Walton</u> (Georgia Institute of Technology, U.S.A)	
12:00		Lunch	
		Chair: A. Kondo (Tokyo University of Agriculture and Technology)	Lecture Hall
13:20	KL4	Intrinsic Thermal Management Capabilities of Flexible Metal-organic Frameworks for CO ₂ Separation <u>H. Tanaka</u> , S. Hiraide and M. T. Miyahara (Kyoto University, Japan)	
13:50		Break	
		B. Instrumentation for Adsorption Measurement/C. Chemisorption & Catalysis	
		Chair: F. Y. Yeoh (Universiti Sains Malaysia)	Lecture Hall
14:00	LB-1	Suitable Gas Probe (N ₂ or Ar) for Characterization of Pore Size Distribution <u>K. Nakai</u> , T. Funahashi, T. Shigeoka, H. Tanaka and M. T. Miyahara (MicrotracBEL Corp., Japan)	
14:20	LB-2	Study of Multi-Component Vapor Phase Adsorption Breakthrough of Volatile Organic Compounds (VOCs) at sub-ppm Levels Through Selected Ions Flow Tube Mass Spectrometry <u>T. Viridis</u> , C. Walgraeve, H. Van Langenhove, J. F. M. Denayer (Vrije Universiteit Brussels, Belgium)	
14:40	LC-1	Preparation of Shaped Porous Coordination Polymer Composites by Using Macroporous Solid Materials for Gas Separation <u>M. Matsuoka</u> , S. Mine and Y. Horiuchi (Osaka Prefecture University, Japan)	
15:00	LC-2	Ortho-Para Conversion of Hydrogen Molecule Adsorbed in the Nanospace of Porous Metal Complexes <u>A. Hori</u> , K. Kaneshima, A. Mishima, Y. Ma and R. Matsuda (Nagoya University, Japan)	
15:20		Coffee Break	
		E2. Adsorption for Bio-applications	
		Chair: M. Matsuoka (Osaka Prefecture University)	Lecture Hall
15:40	LE2-1	Small Uremic Toxins Adsorption by Nanoporous Biomaterials <u>F.-Y. Yeoh</u> , C.-H. Ooi, W.-K. Cheah, and Y.-L. Sim (Universiti Sains Malaysia, Malaysia)	
16:00	LE2-2	Acetic Acid Recovery from Fermentation Broth in Layered Beds <u>A. P. Mathews</u> and H. Naidu (Kansas State University, U.S.A)	
16:20	LE2-3	Adsorption Kinetics of Protein for Improved Understanding of Biopharmaceutical Processes <u>S. Hedberg</u> , L. Brown, J. Heng and D. Williams (Imperial College London, United Kingdom)	
16:40	LE2-4	Quantifying Host Cell Protein Interactions with MABs using Interaction Chromatography Tools <u>D. Sethi</u> , S. Hedberg and D. Williams (Imperial College London, United Kingdom)	
17:00	LE2-5	Selective Adsorption and Complexation of Oxalic Acid Metabolite on Aluminosilicate Minerals during Bioleaching <u>X. Xue</u> , I. Pedruzzi, P. Li and J. Yu (East China University of Science and Technology, China)	

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9:40		Coffee Break	
		D. Synthesis and Characterization of Novel Adsorbent Materials	
		Chair: T. Iiyama (Shinshu University)	Seminar room 2
10:00	LD-1	Photo-induced Post-synthetic Modification of Sulfur Functional Groups in a Microporous Metal Complex <u>S. Kusaka</u> , R. Matsuda, S. Kitagawa (Nagoya University, Japan)	
10:20	LD-2	Prediction of Adsorption-Induced Phase Changes in the Zeolitic Imidazolate Framework ZIF-7 <u>A. Arami-Niya</u> , S. Rahman, G. Li and E. May (The University of Western Australia, Australia)	
10:40	LD-3	Recovery of Helium from Gas Mixtures Using Temperature-Regulated Trapdoor Zeolites <u>Y. Wang</u> , A. Arami-Niya, G. Li and E. May (The University of Western Australia, Australia)	
11:00	LD-4	Dramatic Change in Gate Adsorption Pressure of Soft MOF (ELM-12) with Varied Particle Sizes <u>S. Watanabe</u> , A. Fukuta, S. Hiraide, H. Tanaka, and M. T. Miyahara (Kyoto University, Japan)	
11:20		Break	
		Chair: S. Tanaka (Kansai University)	Lecture Hall
11:30	KL3	Defect Engineering for Manipulating Porosity and Adsorption Behavior of Metal-organic Frameworks Y. Jiao, Y. Liu, G. Zhu, J. T. Hungerford, S. Bhattacharyya, R. P. Lively, D. S. Sholl, and <u>K. S. Walton</u> (Georgia Institute of Technology, U.S.A)	
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13:50		Break	
		D. Synthesis and Characterization of Novel Adsorbent Materials	
		Chair: S. Watanabe (Kyoto University)	Seminar room 2
14:00	LD-5	Tools to Characterise Virtual Porous Materials Using a New "Absolute" Accessible Volume <u>L. F. Herrera</u> , L. Prasetyo and D. D. Do (Charles Darwin University, Australia)	
14:20	LD-6	Synthesis and Characterization of Highly Nanoporous Nickel Cobaltite/Graphene Nanocomposite <u>K. P. Annamalai</u> , T. Chen, L. Liu and Y. Tao (Chinese Academy of Sciences, China)	
14:40	LD-7	Rapid Microwave-assisted Synthesis of Metal-organic Framework Having Improved Performance as CO ₂ adsorbent for CCS <u>S. Gaikwad</u> and S. Han (Changwon National University, Korea, Republic of)	
15:00	LD-8	Ultrafast Room Temperature Synthesis of Gly@Cu-BTC with High CO ₂ /CH ₄ /N ₂ Adsorption Selectivity and Improved Stability against Moisture Y. Wu, <u>X. Zhou</u> and Z. Li (South China University of Technology, China)	
15:20		Coffee Break	
		E3. Adsorption for Environment Protection	
		Chair: A. Kodama (Kanazawa University)	Seminar room 2
15:40	LE3-1	Development of Porous Carbon Materials from Petroleum Coke via KOH Activation for CO ₂ capture S. W. Choi, E. Jang, S.-M. Hong, <u>K. B. Lee</u> (Korea University, Korea, Republic of)	
16:00	LE3-2	Temperature Swing Adsorption Processes for CO ₂ Capture from Moist Flue Gas Employing Commercial Zeolites <u>S. E. Zanco</u> , M. Hefti, and M. Mazzotti (ETH Zurich, Switzerland)	
16:20	LE3-3	Characteristics of Activated Carbon in Elevated-temperature Pressure Swing Adsorption Desulfurization <u>P. Hao</u> , Z. Liu, Y. Shi and N. Cai (Tsinghua University, China)	
16:40	LE3-4	Nano-fibrous Silica Supported MgO as an Efficient High-Temperature CO ₂ Adsorbent A. Hanif, <u>J. Shang</u> (City University of Hong Kong, Hong Kong)	
17:00			

Sept. 6

	Chair: A. Endo (AIST)	Lecture Hall
9:00	PL3 Contribution of Adsorption Technology to High Techno-Economic Performance and Carbon Assessment in Integrated Coal-Syngas Process: H ₂ PSA and Pre-combustion CO ₂ Capture <u>C.-H. Lee</u> (Yonsei University, Korea)	
9:40	Coffee Break	
	A. Fundamentals of Adsorption	
	Chair: S. Inagaki (Yokohama National University)	Lecture Hall
10:00	LA-15 Cluster-mediated Diffusion of Light and Heavy Water in Hydrophobic Carbon Pore <u>H. Ito</u> , Y. Ono, F. Vallejos-Burgos, M. Yoshimoto, R. Futamura, K. Kaneko, T. Iiyama and A. Matsumoto (Toyohashi University of Technology, Japan)	
10:20	LA-16 Methanol Film on Oxygenated Graphite at Low Temperatures: Transition from a Ring to String Configurations <u>W. Dilokekunakul</u> , N. Klomkliang, S. Supasitmongkol and D. D. Do (Mahidol University, Thailand)	
10:40	LA-17 Co-ion Association Structure of Ionic Liquids in Monolayer Sized Carbon Nanopores <u>R. Futamura</u> , T. Iiyama, Y. Gogotsi, M. J. Biggs, M. Salanne, P. Simon, and K. Kaneko (Shinshu University, Japan)	
11:00	Break	
	Chair: T. Ohba (Chiba University)	Lecture Hall
11:10	KL5 Structure and Gas Transport at the Polymer-Zeolite Interface: Insights from Molecular Dynamics Simulations R. C. Dutta and <u>S. K. Bhatia</u> (The University of Queensland, Australia)	
11:40	Lunch	
13:10	Excursion	



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9:40	Coffee Break	
	E3. Adsorption for Environment Protection	
	Chair: K. B. Lee (Korea University)	Seminar room 2
10:00	LE3-5 Separation of Guaifenesin Enantiomers by Simulated Moving Bed Process with Four Operation Modes R. Gong, Y. Yang, J. Wang, <u>P. Li</u> and J. Yu (East China University of Science and Technology, China)	
10:20	LE3-6 Adsorption Capacity of TEDA-Impregnated Activated Carbons for Removal of Radioactive Methyl Iodide <u>K. Ho</u> , T. Im, Y. K. Hwang, C.-H. Lee (Yonsei University, Korea, Republic of)	
10:40	LE3-7 Adsorption Interactions between Volatile Organic Compounds and Natural and Synthetic Fibres: Impact of Relative Humidity M. Guo, L. Cao, <u>E. Hunter-Sellers</u> , N. Ali, D. Williams (Imperial College London, United Kingdom)	
11:00	Break for Changing the Lecture Room	
	Chair: T. Ohba (Chiba University)	Lecture Hall
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